

REMARKS/ARGUMENTS

This Amendment is in response to the Office Action dated December 12, 2008.

Claims are 1, 3-11, and 13-20 pending. Claims 1-20 are rejected. Claims 1, 3-4, 8-9, 11, 13, and 18-19 have been amended. Accordingly, claims 1, 3-11, and 13-20 remain pending in the present application.

Independent claims 1 and 11 have been amended to recite that the method/program instructions are "implemented as a lithography simulation program for execution on a computer"; that that input values for the parameters are received from a user; and that "the optimal reflectivity value" is used "to one of minimize and maximize reflectivity of at least one layer boundary in the multilayer stack to reduce resist critical dimension (CD) variation and improve accuracy of a lithography process".

Support for the amendment regarding a lithography simulation program executing on a computer may be found at least in [019]. Support for the amendment that the optimal reflectivity value is used to one of minimize and maximize reflectivity of at least one layer boundary in the multilayer stack to... improve accuracy of a lithography process may be found at least in [002] through [007]. Support for the amendment that input values for the parameters are received from a user may be found at least in [025]. Support for the amendment of reducing resist critical dimension (CD) variation may be found at least in [031]. Accordingly, No new matter has been added.

Claim 4 has been amended to depend from claim 3, rather than canceled claim 2, as suggested by the Examiner, to overcome a §112 rejection. Dependent claims 3, 8-9, 13 and 18-19 have been amended to maintain antecedent basis of the base claims. These amendments are seen by Applicant as broadening or cosmetic, and as such, are not

subject to the prosecution history estoppel imposed by the Supreme Court in Festo.

Allowable Subject Matter

Applicant acknowledges that the Examiner has withdrawn the 35 USC §103 rejection for claims 1, 3-11 and 13-20.

§101 Claim Rejections Overcome

Claims 1, 3-11 and 13-20 are rejected under 35 USC §101 is directed to non-statutory subject matter. Applicant respectfully disagrees as to claims 1 and 11 as amended.

The "machine-or-transformation test" is the test to be used in determining whether a claimed process is eligible for patenting under § 101. In Re Bilski, Fed. Circ. (2008). The machine-or-transformation test is a two-branched inquiry. To satisfy §101, an applicant must show that the process claim is either (1) tied to a particular machine or apparatus or (2) transforms a particular article into a different state or thing.

It is submitted that the amended independent claims pass at least one, if not both, prongs of the test. Regarding the machine prong, claim 1 has been amended to recite the method is implemented as a lithography simulation program executed on a computer. It is respectfully submitted that the method claim suffices to tie the process to a particular machine, since the lithography simulation program executes on the recited computer and transforms the computer from performing a generic function to a particular function of the recited method.

Regarding the second prong, the particular article being transformed into a different state or thing include the reflectivity of a least one layer of the multilayered stack and the resist critical dimension variation of the multilayered stack during the lithography process.

(The stack is defined in the Specification as comprising stack layers separated by boundaries, each of which is defined by a set of tangible parameters including thickness and an index of refraction. See [005], [020] and [022]). Under the claimed method, the minimum or maximum reflectivity is obtained from the optimal reflectivity value, which in turn is based on parameters received by a user. The minimum or maximum reflectivity is then used to reduce the resist critical dimension variation in the multilayer stack, thereby improving accuracy of the lithography process.

Thus, the reflectivity of the multilayered stack is transformed by the optimal reflectivity value into a minimum or maximum reflectivity, and the resist critical dimension variation of the multilayered stack is transformed by the minimum or maximum reflectivity from being less accurate to more accurate.

Although the claim may utilize a mathematical formula to calculate the optimal reflectivity value, the claim is tied to a particular machine and brings about a particular transformation of the reflectivity and the resist critical dimension of the multilayered stack. Therefore, the claim does not preempt all uses of a mathematical formula in any field, but rather is limited to the specific application of improving the accuracy of a lithography process.

Because claims 1 and 11 pass at least one, if not both, prongs of the machine-or-transformation test, claims 1 and 11 recite eligible subject matter under §101.

Claims 1 and 11 are thus allowable. Applicant submits that claims 3-10 and 13-20 are allowable because they dependent these allowable base claims.

In view of the foregoing, it is submitted that claims 1, 3-11, and 13-20 are allowable over the cited reference. Accordingly, Applicant respectfully requests reconsideration and passage to issue of claims 1, 3-11, and 13-20 as now presented.

Applicants' attorney believes this application in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicants' attorney at the telephone number indicated below.

Respectfully submitted,

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Date: March 12, 2009